

ARTICLE 7 - GC/CM QUALITY CONTROL

7.1 General

The GC/CM is responsible for quality control and shall establish and maintain an effective quality control system in compliance with the Supplemental Conditions. The GC/CM Quality Control (QC) system shall consist of plans, procedures, and organization necessary to provide materials, equipment, workmanship, fabrication, construction and operations, both on-site and off-site that complies with contract requirements and is keyed with the construction schedule. The GC/CM shall review and certify as correct, complete, and in compliance with contract requirements all shop drawings and lists of materials, fixtures and equipment as required by technical specifications. The GC/CM shall employ a BIM tracking system to mitigate systems and structural conflicts in the field.

Definition: A definable feature of Work is a task that is separate and distinct from other tasks and has separate control requirements. It could be identified by different trades or disciplines, or it could be work by the same trade in a different environment, although each section of the specifications may generally be considered as a definable feature of the work, there is frequently more than one definable feature under a particular section.

Quality control is the sole responsibility of the GC/CM.

7.2 Quality Control System

The inspection program required by General Conditions paragraph 5.15, Tests and Inspections, shall include the following minimum requirements:

Preparatory Inspection (pre-installation meetings): This shall be performed prior to beginning any work and shall include:

- A review of applicable specifications
- A review of the contract plans
- A check to assure that all materials and/or equipment have been tested, submitted and approved
- A check to assure that provisions have been made to provide control inspection and testing
- Examination of the work area to assure that all required preliminary work has been completed and is in contract compliance
- A physical examination of required materials, equipment and sample work to assure that they conform to approved shop drawings or submitted data and are properly stored
- Discussion of procedures for constructing the work, including repetitive deficiencies, construction tolerances and workmanship standards specified in the documents

Initial Inspection: This shall be performed as soon as work begins on a definable feature of work and the following shall be accomplished. This inspection phase should be repeated for each new crew on site performing the work, or any time standards are not being met.

- A check of preliminary work to ensure that it is in contract compliance and review of the preparatory meeting minutes
- Verification of full contract compliance and verify that required control inspection and testing is underway
- Establish level of workmanship, verify that it meets minimum acceptable workmanship standards, and compare work with sample panels, etc., as appropriate
- Provide hazardous materials inspection. Coordination with the owner regarding discovery and abatement procedures.
- Resolve all differences and disputes between subcontractors, subcontractors and suppliers, or subcontractors and GC/CM concerning coordination, interferences, or extent of work. The GC/CM may not delegate or assign its responsibility to resolve subcontractor conflicts.

Follow-Up Inspections: These should be performed daily to assure continuing compliance with contract requirements, including control testing, until completion of the particular feature of work. The Owner or Owner's representative may require joint State/Contractor inspections at any time and on a periodic basis to evaluate the effectiveness of the quality control system.

As-Builts: The GC/CM shall maintain full size marked -up drawings, survey notes, sketches, nameplate data, pricing information, description, and serial numbers of all installed equipment as well as other information depicting as-built conditions. This information shall be updated daily and be maintained in a current condition at all times until completion of work and shall be available for review by owner or owner's representative at all times. Upon completion of the work, this information shall be furnished to the Owner or Owner's representative a minimum of two weeks prior to final inspection.

Tests: All operation and acceptance tests, where specified, are to be performed to verify control measures are adequate. These tests are to be documented (see sample test forms) and a copy provided to the Owner.

7.3 Quality Control Organization

Quality Control Organization: The GC/CM shall identify a Quality Control (QC) staff within the organization, describing lines of authority and acknowledgment that the QC staff shall implement the inspection program. The staff shall include a full time, on-site representative who shall report to an off-site GC/CM headquarters executive or someone higher in the GC/CM's organization.

The site representative shall be on the work site at all times during progress of the work with complete authority to take action necessary to ensure compliance with the contract documents. This includes authority to stop work, if necessary. Additional staff, if needed, for the QC organization is to be at a satisfactory level as required to perform the activities outlined in this section.

7.4 QC Plan:

The GC/CM firm shall submit a QC Implementation Plan to the State during the construction documents phase of preconstruction. The plan shall include the following information:

- The inspection organization
- Name, qualifications (in resume format), authority, and responsibility of inspection personnel
- Procedures for scheduling, reviewing, certifying and managing submittals, including those of subcontractors, off-site fabricators, suppliers and purchasing agents
- Procedures for planning and scheduling utility shutdowns, road closures, and any other work item that may cause interruption to the owner's ongoing or adjacent activities.
- Methods to be used for documenting the inspection program (see attached typical forms)
- Procedures for tracking construction deficiencies from identification through acceptable corrective action, establishing verification that deficiencies have been corrected

7.5 Coordination Meeting/Acceptance of Plan:

Before start of construction, the GC/CM shall meet with the Owner and architect representatives to discuss the QC Plan. During the meeting, a mutual understanding of the system details shall be developed. Acceptance of the QC Plan is conditional and will be predicated on satisfactory performance during construction. The Owner shall be notified of any proposed changes to the plan, and those changes are subject to review/acceptance by the Owner.

7.6 Reporting:

The QC representative shall maintain a daily record of all inspections and tests performed for each shift of Subcontractor operations in an appropriate format. These records shall provide factual evidence that continuous quality control inspections and tests have been performed, including any defects, causes for rejection, proposed remedial action and corrective actions taken. Copies shall be furnished to the Owner or Owner's representative daily (see sample daily report form at the end of this section). Reporting procedures, including proposed reporting formats (see sample forms)

If recurring deficiencies indicate that the QC System is not adequate, corrective action shall be taken as directed by Owner. Progress payments may be withheld until such corrective action has been completed per the General Conditions.

7.7 Notice of Non-Compliance:

The Owner will notify the GC/CM of any detected noncompliance with the foregoing requirements. The GC/CM shall take immediate corrective action after receipt of such notice. Such notice, when delivered to the GC/CM at the work-site, shall be deemed sufficient for the purpose of notification. If the GC/CM fails or refuses to comply promptly, the Owner may issue an order stopping all or part of the work until satisfactory corrective action has been taken. No part of the time lost due to such stop orders shall be made the subject of claim for extension of time or for excess costs or damages by the GC/CM.